

**Supporting Information for**

**Synergistic healing of diabetes wounds through  
photothermal and peroxidase-like activity of  
heterogeneous Bi<sub>2</sub>S<sub>3</sub>/Au nanoparticles**

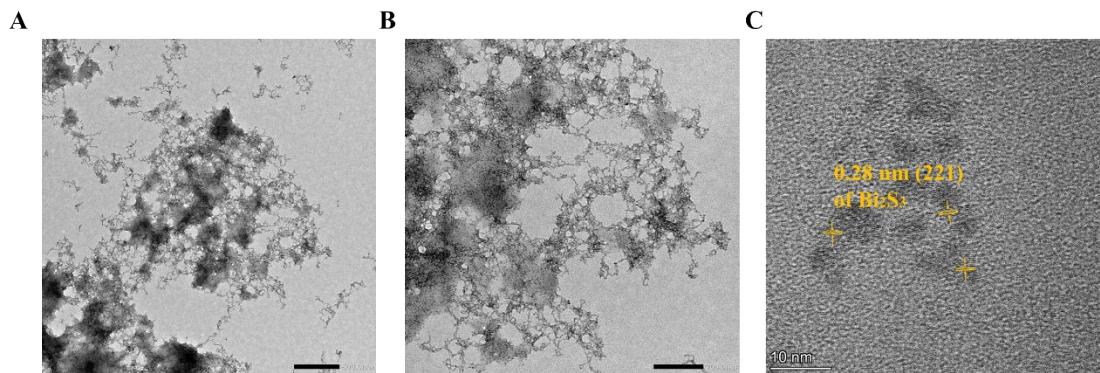
*Zilin Zhou<sup>1</sup>, Lihui Meng<sup>1</sup>, Yanru Hu<sup>1</sup>, Meng Wang<sup>1</sup>, Shuojie Cui<sup>1</sup>, Panwen Liu<sup>1</sup>, Yilin Yang<sup>1</sup>, Zebin Chen<sup>2\*</sup>, Qingzhi Wu<sup>1\*</sup>*

<sup>1</sup> State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan 430070, P. R. China.

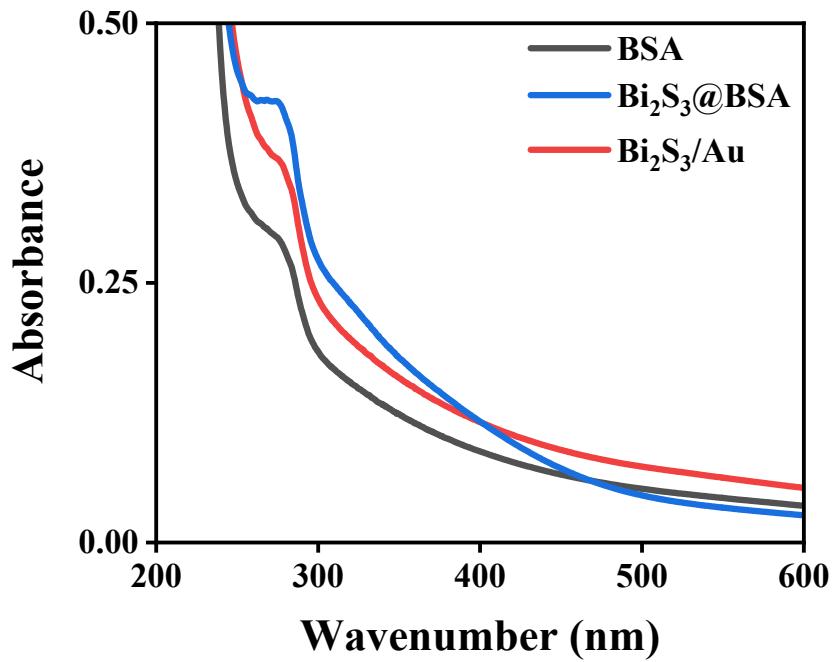
<sup>2</sup> Center of Hepato–Pancreato–Biliary Surgery, The First Affiliated Hospital, Sun Yat-sen University, Guangzhou 510080, P. R. China

\* Corresponding authors.

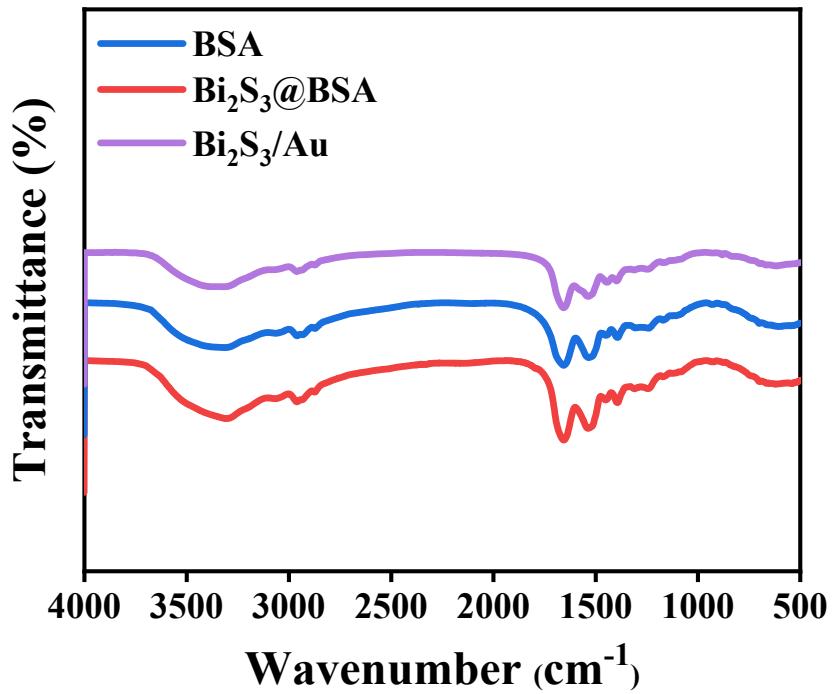
E-mail addresses: [wuqzh@whut.edu.cn](mailto:wuqzh@whut.edu.cn) (Q Wu); [chenzb23@mail.sysu.edu.cn](mailto:chenzb23@mail.sysu.edu.cn) (Z Chen)



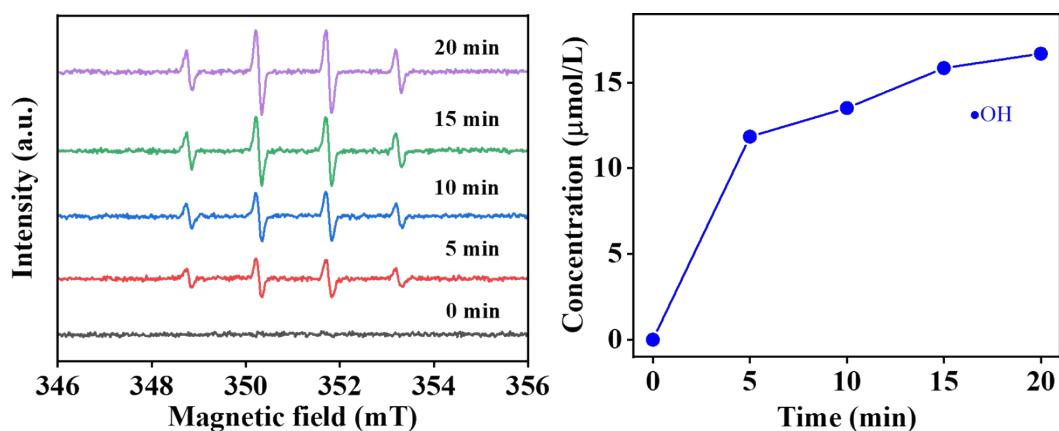
**Fig S1.** (A)&(B)TEM image of  $\text{Bi}_2\text{S}_3@\text{BSA}$  NPs. (C) HR-TEM image of  $\text{Bi}_2\text{S}_3@\text{BSA}$  NPs.



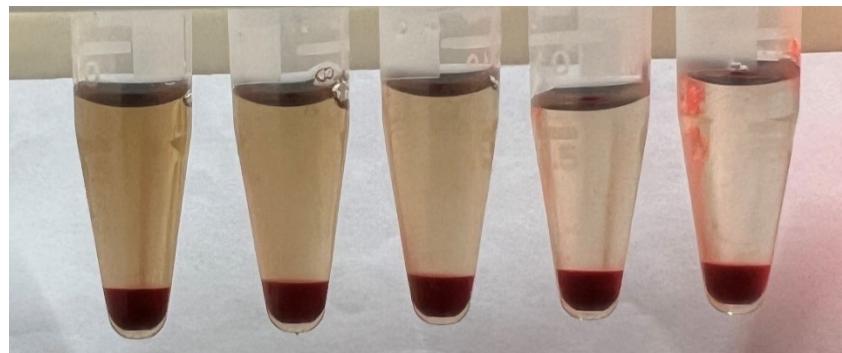
**Fig S2.** UV-vis absorption spectra of  $\text{Bi}_2\text{S}_3/\text{Au}$  NPs and  $\text{Bi}_2\text{S}_3@\text{BSA}$  NPs.



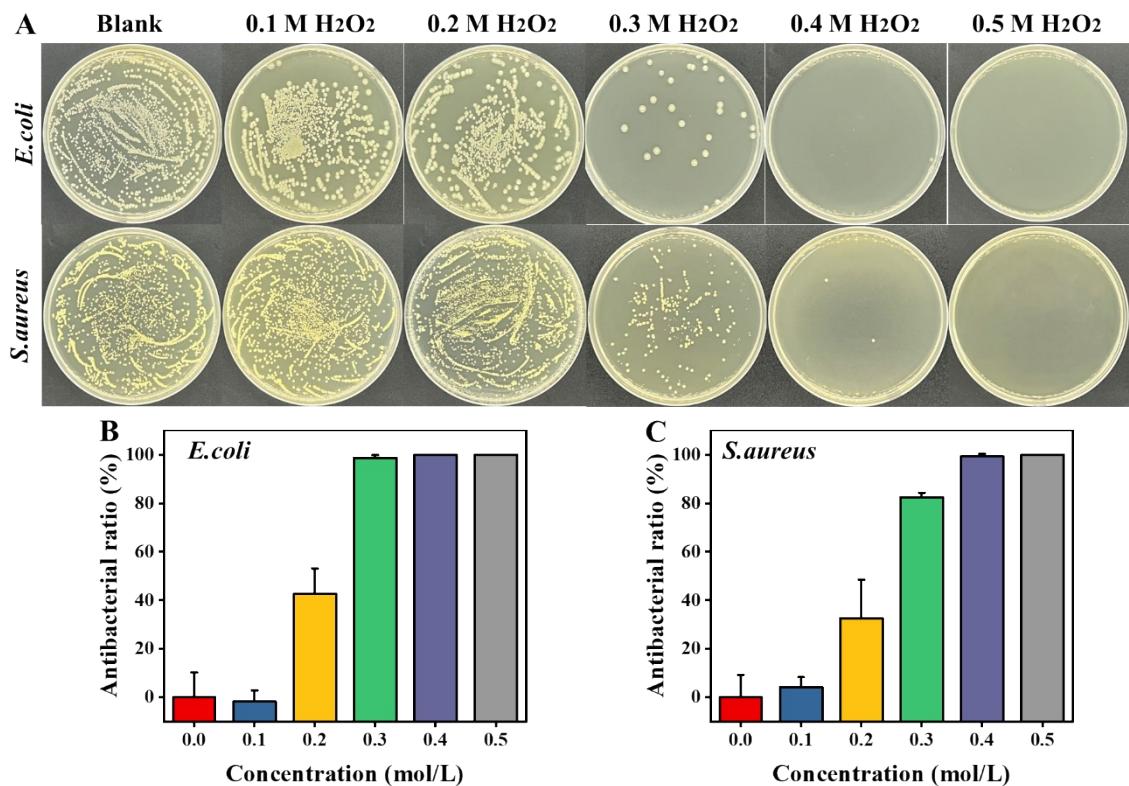
**Fig S3.** FT-IR spectra of BSA,  $\text{Bi}_2\text{S}_3@\text{BSA}$  NPs, and  $\text{Bi}_2\text{S}_3/\text{Au}$  NPs.



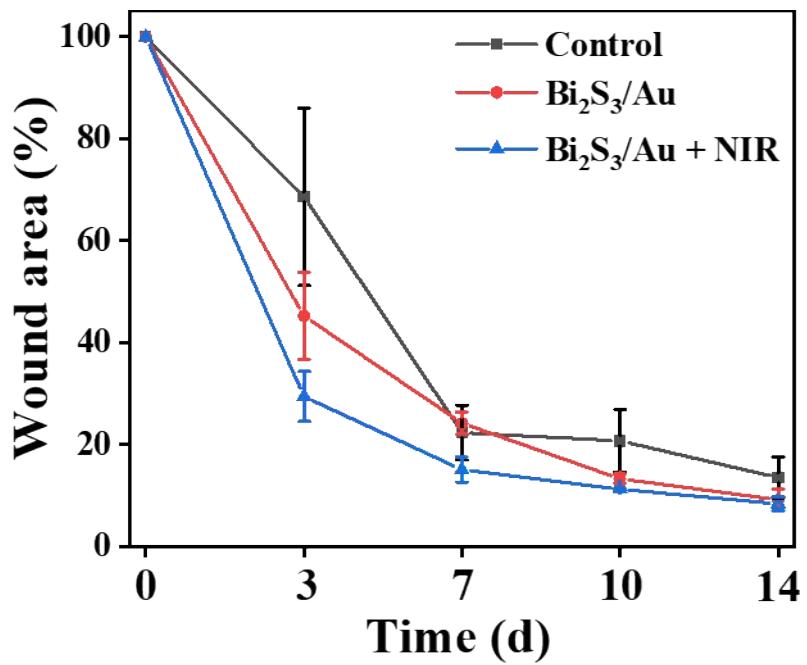
**Fig S4.** Changes in ESR spectra of  $\cdot\text{OH}$  species during the oxidation of TMB by  $\text{Bi}_2\text{S}_3/\text{Au}$  NPs within 0-20 minutes.



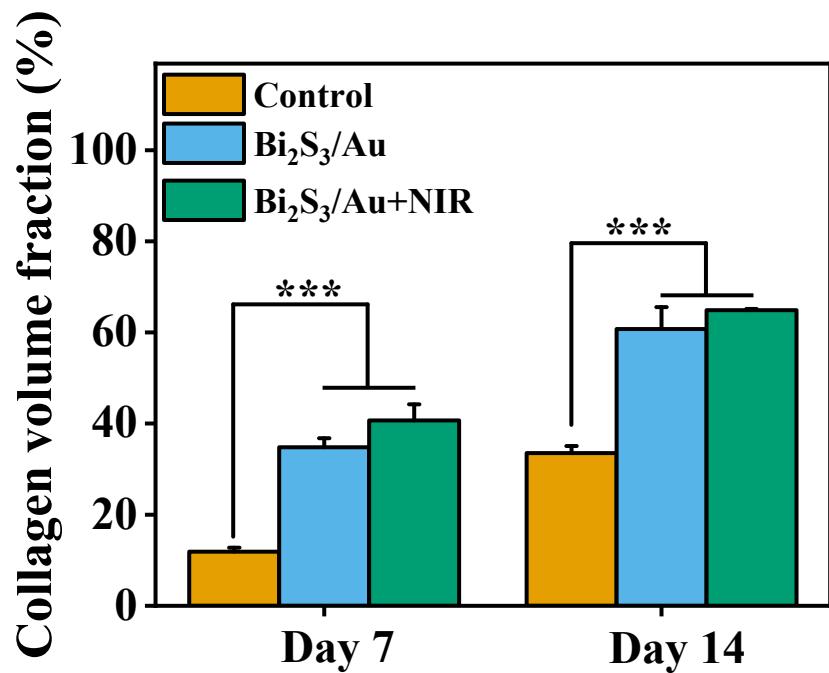
**Fig S5.** Hemolysis test of Bi<sub>2</sub>S<sub>3</sub>/Au NPs at different concentrations (from left to right: 10 mg/mL, 5 mg/mL, 2.5 mg/mL, 1.25 mg/mL and 0 mg/mL).



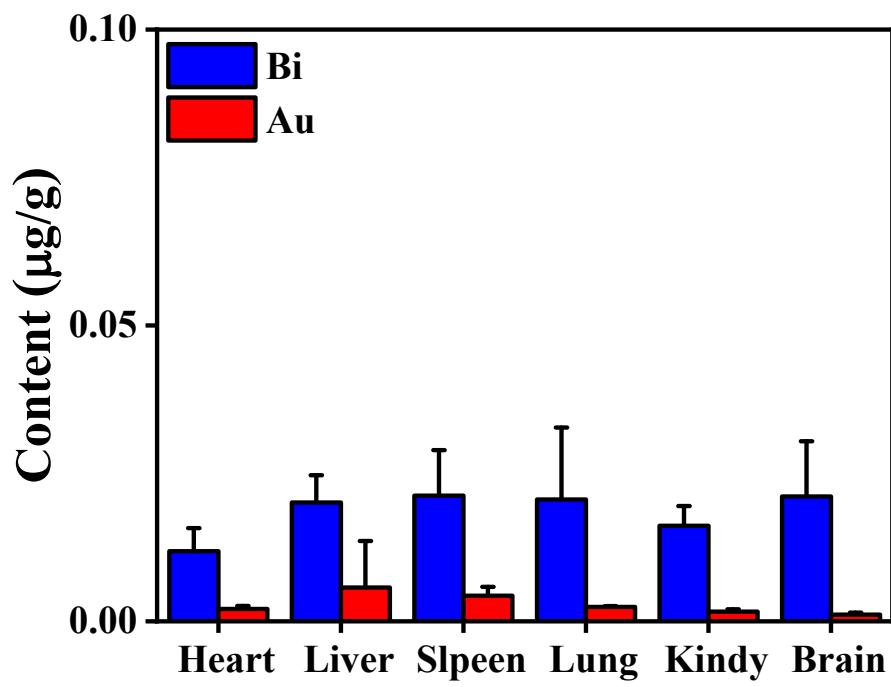
**Fig S6.** (A) Colony photos of *E. coli* and *S. aureus* at different concentrations of H<sub>2</sub>O<sub>2</sub>. Antibacterial rate of Bi<sub>2</sub>S<sub>3</sub>/Au NPs at different concentrations of H<sub>2</sub>O<sub>2</sub> against (B) *E. coli* and (C) *S. aureus*.



**Fig S7.** Line chart of wound area size for each group



**Fig S8.** Collagen volume fraction at days 7 and 14 for each group.



**Fig S9.** The content of Au and Bi elements in various tissues of mice.